

Serial No. 09/847,044
Amdt. Dated August 30, 2004
Reply to Office Action of July 9, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-7 (canceled)

Claim 8 (currently amended): A method for joining a cluster with a cluster membership monitor within a clustered computer network, comprising the steps of:
starting a local cluster membership monitor entity on a node when it boots;
with the local cluster membership monitor entity, establishing contact with peer cluster membership monitor entities on peer nodes of the cluster; [[and]]
wherein if peers when the peer nodes are found, performing a consensus protocol is performed, with the booting node and the found peer nodes;
when the consensus protocol performing results in a consensus being achieved, determining whether one of the found peer nodes is a master node of the cluster; and
if the master node is determined, joining the cluster with the booting node.

Claim 9 (canceled)

Claim 10 (currently amended): The method of claim 9, further comprising ~~the step of obtaining~~ using the local cluster membership monitor entity on the booting node to obtain configuration data from a master cluster membership monitor entity located on the master node and configuring the booting node based on the obtained configuration data.

Claim 11 (currently amended): The method of claim 10, further comprising the step of logging in a local system log of the master node a cluster ~~[[joint]]~~ joining event indicating addition of the booting node as one of the peer nodes of the cluster.

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Claim 12 (currently amended): A method for monitoring the viability of cluster members comprising the steps of

identifying one of the cluster members as a master node;

providing a heartbeat by [[a]] the master node to other ones of the cluster members; [[and]]

wherein if the heartbeat received by viable nodes among the other ones is within a peer node time-out period, the peer node responds, otherwise a cluster reformation occurs; operating the viable nodes to respond to the master node; and

if the heartbeat received by the viable nodes is outside the peer node time-out period, operating at least one of the viable nodes to initiate a reformation of the cluster members.

Claim 13 (currently amended): The method of claim 12, further comprising the steps of

maintaining a master list of the cluster members with the master node;

with the master node, verifying that each peer node of the other ones has responded to the heartbeat; and

wherein if all nodes listed in a master list of cluster members have responded, providing another heartbeat with the master node can be provided, and

wherein otherwise operating the master node to remove a node not responding is removed from the list of the cluster members ; and

with the master node, making a cluster change request is made.

Claim 14 (currently amended): The method of claim 13, wherein the cluster change request further comprises notifying a cluster coordination function to update the list of the cluster members.

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Claim 15 (currently amended): The method of claim 12, wherein the cluster reformation further comprises the steps of:

verifying if cluster reformation has already been initiated; and
wherein if cluster reformation has not been initiated, cluster reformation is initiated;

determining a master node priority of each of the viable nodes;
electing the viable node with the highest master node priority to be the
highest priority node becomes the a new master node; and
operating the new master node to repeat the providing of the heartbeat to
the other ones of the cluster members ~~the master heartbeat can be provided.~~

Claim 16 (new): A system for monitoring cluster membership within a clustered computer network, comprising

a plurality of peer nodes communicatively linked within the clustered computer network and each locally running a cluster membership monitor and having a master node priority value;

wherein a one of the peer nodes having the highest of the master node priority values is elected as a master node;

wherein the one of the peer nodes elected as the master node further stores a cluster configuration defining a set of the peer nodes which are members of a cluster and defining configuration data for the member peer nodes; and

wherein the master node periodically transmits a heartbeat to each of the member peer nodes and viable ones of the member peer nodes respond to provide an indication of viability.

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Claim 17 (new): The system of claim 16, wherein the viable ones of the member peer nodes only perform the responding when the heartbeat is received within a period of time defined in the configuration data and when not received with the period of time, at least one of the viable ones of the member peer nodes initiates a cluster reformation which includes determining a new master node among the viable ones of the member peer nodes based on the master node priority values.

Claim 18 (new): The system of claim 17, wherein the new master node stores the cluster configuration defining a new set of the peer nodes which are members of the cluster and periodically transmits a heartbeat to each of the peer nodes in the new set of cluster members.